

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently amended) ~~The method of Claim 1~~ A method for processing a digital image  $B_1$ , the image  $B_1$  being a convolution of an image  $F$  and a point spread function  $h$ , comprising removing noise from the image  $B_1$  so as to produce an image  $B'$  of reduced noise, and calculating  $F$  based upon  $B'$ ,

wherein an amount of noise is calculated in a plurality of images  $B$ , and the image  $B'$  is selected as an image of essentially minimal noise among the images  $B$ .

3. (Currently amended) ~~The method of Claim 1~~ A method for processing a digital image  $B_1$ , the image  $B_1$  being a convolution of an image  $F$  and a point spread function  $h$ , comprising removing noise from the image  $B_1$  so as to produce an image  $B'$  of reduced noise, and calculating  $F$  based upon  $B'$ ,

wherein the amount of noise in an image is calculated using an algebraic expression involving the gradient of a function  $P(x)$  obtained by inverse Fourier transform of  $\tilde{B}(q)/\tilde{h}(q)$ .

4. (Original) The method of Claim 3, wherein the amount of noise  $N$  in an image  $B$  is calculated according to the algebraic expression  $N = \int \nabla P(x) \cdot \nabla P^*(x) dx$ , wherein  $\nabla$  indicates the gradient and "\*" indicates complex conjugate.

5. (Currently amended) The method according to Claim 4 wherein  $\tilde{B}'(q)$ , the Fourier transform of  $B'$ , is equal to  $\tilde{B}_{i+1}(q)$  for ~~same~~ some integer  $i$ , where  $\tilde{B}_{i+1}(q)$  is obtained according to the algebraic expression  $\tilde{B}_{i+1}(q) = \tilde{B}_i(q)(1 + \varepsilon \|\tilde{D}(q)\|^2 q^2)^i$ , where  $\varepsilon$  is a small positive number.

6. (Currently amended) The method according to Claim 4 wherein  $\tilde{B}'(q)$  is obtained according to the algebraic expression  $\tilde{B}'(q) = \tilde{B}_1(q)e^{-\alpha \|\tilde{D}(q)\|^2 q^2}$ , where  $\alpha$  is a predetermined constant, ~~and~~ and  $\tilde{D}(q)$  is the Fourier transform of  $1/h$ .

7. (Currently amended) ~~The method of Claim 1~~ A method for processing a digital image  $B_1$ , the image  $B_1$  being a convolution of an image  $F$  and a point spread function  $h$ , comprising removing noise from the image  $B_1$  so as to produce an image  $B'$  of reduced noise, and calculating  $F$  based upon  $B'$ ,

wherein calculating  $F$  involves calculating an inverse Fourier transform of the algebraic expression  $\tilde{B}'(q)/\tilde{h}(q)$ ,

wherein  $\tilde{B}'(q)$  is the Fourier transform of the image  $B'$  of reduced noise, and  $\tilde{h}(q)$  is the Fourier transform of  $h$ .

8. (Canceled)

9. (Currently amended) ~~The method of Claim 8~~ A method for processing a deconvoluted image B, the image B having been deconvoluted according to a deconvolution filter D, the method comprising reducing correlation between the image and the deconvolution filter,

wherein an amount of correlation is calculated in a plurality of images P, and an image P' is selected among the images P as an image having essentially minimal correlation with the ~~deconvolution~~ deconvolution filter.

10. (Original) The method of Claim 9 wherein the amount of correlation C in an image P is calculated according to the algebraic expression  $C = \int dq \|\tilde{D}(q)\|^2 \cdot \|\tilde{P}(q)\|^2$  wherein  $\tilde{P}(q)$  is the Fourier transform of an image P.

11. (Currently amended) The method of Claim 9 wherein  $\tilde{P}'(q)$ , the Fourier transform of  $P'$ , is equal to  $\tilde{P}_{i+1}(q)$  for ~~same~~ some integer i, where  $\tilde{P}_{i+1}(q)$  is obtained according to the algebraic expression  $\tilde{P}_{i+1}(q) = \tilde{P}_i(q)(1 + \varepsilon \|\tilde{D}(q)\|^2)^i$ , where  $\varepsilon$  is a small positive number.

12. (Original) The method of Claim 9 wherein  $\tilde{P}'(q)$  is obtained according to the algebraic expression  $\tilde{P}'(q) = \tilde{P}_1(q)e^{-\beta \|\tilde{D}(q)\|^2}$ , where  $\beta$  is a predetermined constant.

13. (Currently amended) ~~The~~ A method for processing a digital image  $B_1$ , the image  $B_1$  being a convolution of an image  $F$  and a point spread function  $h$  comprising the steps of:

removing noise from the image  $B_1$  so as to produce an image  $B'$  of reduced noise;

obtaining function  $\tilde{P}_1(q)$  according to the algebraic expression  $\tilde{P}_1(q) = \tilde{B}'(q) / \tilde{h}(q)$  ;

reducing correlation between  $\tilde{P}_1$  and  $1/\tilde{h}$  so as to product a function  $\tilde{P}'$  of reduced correlation; and

obtaining a rectified image  $F$  by inverse Fourier transform of  $\tilde{P}'(q)$ .

14. (Canceled)

15. (Currently amended) ~~The method according to Claim 14~~ A method for obtaining a radius  $r$  of a point spread function  $h$  describing an out-of-focus distortion of a digital image  $B$ , the method comprising a step of calculating a gradient at a plurality of pixels in the image  $B$ , in which a

radius  $r(x)$  is calculated at each of the plurality of pixels based upon the gradient.

16. (Original) The method according to Claim 15 wherein each of the plurality of pixels is located at an edge of the image B.

17. (Original) The method according to Claim 15 wherein a radius  $r(x)$  is inversely proportional to the gradient at x.

18. (Original) The method according to Claim 16 wherein r is obtained as the  $r(x)$  having an essentially maximal frequency among the calculated radii  $r(x)$ .

19. (Original) The method according to Claim 18 wherein a radius  $r(x)$  is calculated according to the algebraic expression  $r(x) = \frac{2}{\pi s(x)}$ , wherein  $s(x)$  is the absolute value of the gradient of B at x normalized by dividing by the height of the edge at x.

20. (Currently amended) ~~The method of Claim 1~~ A method for processing a digital image  $B_1$ , the image  $B_1$  being a convolution of an image  $F$  and a point spread function  $h$ , comprising removing noise from the image  $B_1$  so as to produce an image  $B'$  of reduced noise, and calculating  $F$  based upon  $B'$ ,

further comprising a step of producing the image  $B'$  from an image  $B_0$ , where the image  $B_0$  was obtained using a digital camera that applies a transformation to a light level detected at a pixel, the transformation having an inverse, wherein  $B_1$  is obtained from the image  $B_0$  by applying to the image  $B_0$  the inverse transformation.

21-22. (Canceled)

23. (Currently Amended) The A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for processing a digital image  $B_1$ , the image  $B_1$  being a convolution of an image  $F$  and a point spread function  $h$ , comprising the steps of:

removing noise from the image  $B_1$  so as to produce an image  $B'$  of reduced noise;

obtaining function  $\tilde{P}_1(q)$  according to the algebraic expression  $\tilde{P}_1(q) = \tilde{B}'(q) / \tilde{h}(q)$  ;

reducing calculation between  $\tilde{P}_1$  and  $\tilde{I}/h$  so as to product a function  $\tilde{P}'$  of reduced correlation; and

obtaining a rectified image  $F$  by inverse Fourier transform of  $\tilde{P}'(q)$ .

24. (Canceled)